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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,747

09/30/2004

Koji Inokuchi

43888-336

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7590
McDermott Will & Emery
600 13th Street NW
Washington, DC 20005-3096

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EXAMINER

CHU, HELEN OK

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/509,747

Applicant(s)

INOKUCHI ET AL.

Examiner

Helen O. Chu

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's Remarks/Arguments has been received on October 18, 2006. Claims 1-3 and 6 have been amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

Specification

3. The disclosure is objected to under 37 CFR 1.71, as being so incomprehensible as to preclude a reasonable search of the prior art by the examiner. For example, the following items are not understood: $90 < Y + 50.5X < 100$ where Y at highest is 1.0 J/g and X at highest is 1.75 g/cm^3 does not satisfy the expression requirement.

Applicant is required to submit an amendment which clarifies the disclosure so that the examiner may make a proper comparison of the invention with the prior art.

Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 1-6 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a carbon rod density of 1.68 g/cm^3 and a paraffin wax of 389 molecular weight at a melting point of 135°F , a carbon rod density of 1.65 with either a paraffin wax of 431 molecular weight at a melting point of 145°F or a paraffin wax of 472 molecular weight at a melting point of 155°F is not reasonably provide enablement for paraffin wax containing hydrocarbon whose molecular weight is 300 to 500 or a microcrystalline wax containing hydrocarbon whose molecular weight is 500-800 and a carbon density of $1.55\text{-}1.75 \text{ g/cm}^3$. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The claim recitation would cause undue experimentation by measuring wax containing different amounts of hydrocarbon relative to the density of the carbon rod in order to obtain 1.0 J/g . As evidence by Table 1, provided by the Applicant, the higher density and lower molecular weight or lower density and higher molecular weight would provide an endothermic amount less than 1.0 J/g . However, a comparison between a carbon rod of 'high' density (Example 1) and 'low' density (Comparative Example 1), a difference of 0.03 g/cm^3 using the same paraffin wax causes significant changes in endothermic amounts. It is unclear to the Examiner or any one of ordinary skill with which combinations of hydrogen molecular weight of paraffin wax and density in carbon rod would cause an endothermic amount of less than 1.0 J/g . For example, would a carbon rod density of 1.66 or 1.67 g/cm^3 and a wax with a hydrocarbon molecular weight of 400

be sufficient to provide an exothermic amount of less than 1.0J/g. *In re Wands*, 858 F. 2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988)

6. Claim 2 and 3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The rational expression provided does not provide the Examiner or anyone of ordinary skill to formulate coherent understanding. The expression provided is $90 < Y + 50.5x < 100$, where Y is the specific energy having units of J/g and X is the density having units of g/cm^3 does not correlate X and Y with each other in this equation. Y and X have two different units and therefore are not combinable.

7. Claim 2 and 3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The rational expression provided does not provide the Examiner or anyone of ordinary skill to formulate coherent understanding. The expression provided is $90 < Y + 50.5x < 100$, where Y being the highest number of 1.0 and X being the highest number of 1.75 does not provide a value greater than 90 and less than 100. Therefore, the Examiner cannot further prosecute claims 2 and 3.

8. Claims depending from claims 1, 2 and 6 rejected under 35 USC 112, first paragraph are also rejected for the same reasons.

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9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation "endothermic amount" is unclear to the Examiner. It is unclear to anyone of ordinary skill what the endothermic amount defines.

11. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation "endothermic amount" is unclear to the Examiner. It is unclear to anyone of ordinary skill what the endothermic amount defines and why at different scanning calorimetry range it would give less than 1.0J/g and the higher the range the more percent of endothermic amounts but still less than 1.0J/g. How is an amount less than 1.0J/g more significant than 1.1 J/g? The Applicant must provide this information before the Examiner withdraws 35 U.S.C 112, second paragraph rejection.

12. Claims depending from claims 1, 2, 4-6 rejected under 35 USC 112, second paragraph are also rejected for the same reasons.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1, 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobuaki (JP 03297063) in view of Nagasawa et al. (US Patent 4,157,317).

In regards to claim 1 and 6, the Nobuaki reference discloses an impregnation material for carbon rod in a manganese dry cell. The abstract describes paraffin wax as the impregnation material consisting hydrocarbon of 300-500 molecular weight, however, the Nobuaki et al. does not disclose the density of the carbon rod. The Nagasawa et al. reference discloses wax impregnation of a carbon rod and the density of the carbon rod is between 1.6-1.8 g/cm³. The Nagasawa et al. reference further discloses below 1.6 g/cm³ density does not provide sufficient strength and higher than 1.8 g/cm³ does not easily allow the gases to escape the rod during heating and cracks (on the rod) is likely to occur (Column 5, lines 5-12). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to apply the wax with hydrocarbons with a molecular weight of 300-500 as taught by Nobuaki to the carbon rod with a density between 1.6-1.8 g/cm³ as taught by Nagasawa et al. to prevent the rod from cracks due to heating and providing a longer life to the manganese dry cell. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. (*MPEP 2144.05 (I)*)

Regarding claims 4 and 5, the endothermic amount indicated by Applicants as not more than 1.0 J/g obtained by differential scanning calorimetry between 20 to 55°C is not more than 25%, 20 to 60°C is between 25% to 40%, 20 to 65°C is between 40% to 70% are all intrinsic properties of the paraffin wax having a molecular weight of 300 to 500.

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Applicant is advised to prove all of the different combinations of the carbon rod density and the wax of different hydrocarbon amounts as taught by the prior art would not provide an endothermic amount of less than 1.0 J/g.

Response to Arguments


15. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


TRACY DOVE
PRIMARY EXAMINER
1/07